

Madison County
STORMWATER MANAGEMENT CHECKLIST
September 2009

Below is a checklist of all necessary components required to complete all Stormwater Management Plans submitted to the Culpeper Soil and Water Conservation District (CSWCD) as in accordance with the Virginia Stormwater Management Law, Title 10, Chapter 6, Article 1.1 of the Code of Virginia and Virginia's Stormwater Management Regulations (4VAC 3-20-10). The Plan preparer must sign, date, and attach the checklist to any Stormwater Management Plan to be reviewed by the CSWCD.

For questions please call the CSWCD at (540) 825-8591. Application forms for the 1999 Virginia Stormwater Management Handbook, 1st Edition, and the Virginia Stormwater Management Program Permit Regulations (4VAC50-60-60) may be obtained from the CSWCD office or online at <http://www.dcr.virginia.gov/sw/stormwat.htm>.

- I. Plan Narrative
 - a. ☐ General project description
 - b. ☐ Description of erosion and sediment controls
 - c. ☐ Description of permanent Stormwater management facilities.
 - d. ☐ Describe non-structural practices to improve water quality
 - e. ☐ Project schedule, including sequence of construction and phasing
 - f. ☐ Describe how the site plan meets the stormwater requirements for the VSMP permit and/or Erosion Control Regulations (Quantity, Quality and Channel Erosion).
 - g. ☐ Natural Resource Assessment (if applicable)
 - i. ☐ Describes features to be preserved (wetlands, forests, existing ponds and streams)
 - ii. ☐ Environmentally sensitive areas to be protected (wetlands, steep slopes, prime soils)
- II. Hydrologic Design
 - a. Rational Method
 - i. ☐ Drainage area is homogenous and less than 200 acres
 - ii. ☐ Provide worksheets with the determinations of "C" values and Time of Concentration (T_c).
 - iii. ☐ Indicate rainfall intensities based on location of site and T_c .
 - iv. ☐ Correction factor for ground saturation ($C_f = 1.0$ for 10- year events; 1.1 for 25-year events; 1.25 for 100-year events)
 - v. ☐ Pre and Post development Hydrographs for each design storm.
 - vi. ☐ Drainage area delineated on a legible drawing indicating existing and proposed improvements and contours. Each area delineated with respect to the point of concentration and acreage. Off-site drainage area delineated on a topographic map or other appropriate documents.

b. Peak Discharge (TR55) Method

- i. ___ Drainage area is heterogeneous and more than 200 acres
- ii. ___ Completed worksheets with determinations of Hydrologic Soil Group, Curve Number (CN), Time of Concentration (T_c), Rainfall depth (in) and unit discharge factor (q_u)
- iii. ___ Pre and Post development Hydrographs for each design storm
- iv. ___ Drainage area delineated on a legible drawing indicating existing and proposed improvements and contours. Each area delineated with respect to the point of concentration and acreage. Off-site drainage area delineated on a topographic map or other appropriate documents.

III. Hydraulic Design

- a. ___ Drainage system outfalls at adequate channel. Adequate channel cross-section and calculations provided.
- b. ___ Drainage systems provide overland relief of 100-year storm event without increasing flooding potential of nearby facilities.
- c. Storm Sewers/Culverts/Ditches
 - i. ___ Drainage design computations, as required by VDOT Drainage Manual
 - ii. ___ Construction information (invert elevations, type of pipe, size, length and percent slope)
 - iii. ___ Surface water is not carried longer than 600 feet in the gutter and recommend 300 feet in vegetated ditches.
- d. Drainage Easements
 - i. ___ Extended to an adequate channel
 - ii. ___ Swales draining runoff across more than 2 lots
- e. ___ Rating curve for pond
- f. ___ Stormwater pond maintains structural integrity during the 100-year storm.
- g. ___ Riser structure and detail (VSWMH Spec 3.02)
- h. ___ Reservoir routing hydrographs for each design storm
 - i. ___ Embankment details (VSWMH Spec 3.01)
- j. ___ Cross sections for stormwater structures

IV. Stormwater Management – Any construction project that disturbs more than 1 acre must file a Virginia Stormwater Management Permit (VSMP) and meet all technical criteria laid out in VSMP regulation (4VAC50-60). The stormwater management plan should meet the following criteria:

- a. Low Impact Development (LID) (if applicable)
 - i. ___ LID Checklist & Narrative
 - ii. ___ Full LID Implemented
 - 1. ___ Computations (Reqd Retention/Detention Volume)
 - 2. ___ Practices provide the Retention/Detention Volume.
 - iii. ___ Partial LID Implemented
 - 1. ___ Computations (Reqd Retention/Detention Volume)
 - 2. ___ Practices provide 70% of Retention/Detention Volume
 - 3. ___ Conventional practices satisfy County Standards
 - iv. ___ Limited LID Implemented
 - 1. ___ Filtering practices utilized

2. ☐ Disconnection maximized
 3. ☐ Minimized impervious surfaces
 4. ☐ Conventional practices satisfy County Standards
- b. Quantity Control
- i. ☐ Ten-year post-developed peak runoff rate does not exceed the ten-year pre-developed runoff rate.
 - ii. ☐ Linear projects (utilities, etc.) maintains disperse flows
- c. Quality Control
- i. ☐ Performance-based method (see worksheets from Appendix 5D of the Virginia Stormwater Management Handbook)
 1. ☐ Situation 1
 2. ☐ Situation 2
 3. ☐ Situation 3
 4. ☐ Situation 4
 - ii. ☐ Technology-Based method (see Table 1 in 4VAC50-60-60 of VSMPP Regulations)
 - iii. ☐ Quantify impervious surface
 - iv. ☐ Determine Pollution loadings and removal rate required to maintain pre-developed loads.
 - v. ☐ Does the stormwater plan meet the removal requirements?
- d. Channel Erosion
- i. ☐ Comply with Minimum Standard 19 of VAC50-30-40 of the Erosion and Sediment Control Regulations for conveyance channels (onsite/offsite).
 - ii. ☐ Provide 24 hour extended detention for the one-year, 24- hour storm for the site (receiving channel).

V. BMPs

- a. General – For all BMPs (including conventional dry ponds)
- i. ☐ Provide cross-section and construction specifications
 - ii. ☐ Provisions for construction oversight (especially infiltration structures and new technology)
 - iii. ☐ Maintenance Agreement
 1. ☐ Maintenance Plan
 2. ☐ Permanent easements
 3. ☐ Responsible Party
 4. ☐ As-Built Survey (if applicable)
 - iv. ☐ Design integrated with erosion control plan
- b. Riparian and Stormwater Buffers (Perennial and Intermittent stream channels)
- i. ☐ All permanent structures are excluded from the buffer area
 - ii. ☐ An enforceable deed restriction or easement is proposed for the buffer on each lot.
 - iii. ☐ Restrictions include no disturbance for permanent features (residences, out-buildings, roads/parking)
 - iv. ☐ Limits of Construction are completely outside the buffer

CERTIFICATION OF PLAN PREPARER:

I certify that the above checklist items are fulfilled in the attached storm water management plan, unless I have attached a written variance request for the omitted components.

(signature of plan preparer)

(date)

(print name)

(phone number)